

**EPA Review of  
Army's Response to Comments and revised Draft (red-line strike out [RLSO])  
Site Inspection (SI) Report for Per- and Polyfluoroalkyl Substances (PFAS)  
Former Fort Devens Army Installation, Devens, MA – January 12, 2018**

EPA original comments are enumerated, followed by Army's Response to Comments (RTC). EPA's review of the RTCs and the revised Draft (RLSO) SI Report follows in italics.

**General Comments**

1. Documentation of the PFAS SI work conducted at the Devens Fire Station, as planned in the Addendum to the Expedited Site Inspection Work Plan for PFAS dated September 2017, and results should be incorporated into the next version of the SI Report, with supporting tables and figures added.

Army Response: Work conducted at the Devens Fire Station will be incorporated in the next version of the SI Report, including supporting tables and figures. The Fire Station PFAS work is scheduled for January 2018.

EPA Review: *Response accepted.*

2. The SI Report must better document the preservation of aqueous samples with Trizma. Army's contractor, BERS-Weston, in a June 17, 2017 memorandum to the Army Corps of Engineers discusses a variance to the Final ESI Work Plan that included the preservation of groundwater samples with Trizma, whereas the Work Plan had specified the samples would be unpreserved. The memorandum explains that "the modification to the drinking water method (EPA 537) is intended to remove the requirement to preserve [with Trizma], not disallow it" and "no effects of Trizma have ever been observed". The memorandum further states that BERS-Weston has requested that the laboratory note in the case narrative that samples were preserved with Trizma and to discuss any potential impacts to the detection and quantitation of the target compounds if they exist. The case narratives included in the laboratory data packages in Appendix C did not include this discussion. In addition, within Section 3.1.2, the preservation of existing groundwater monitoring well samples with Trizma is discussed on page 8, whereas there is no mention of Trizma preservation of temporary point groundwater samples within Section 3.1.4. EPA recommends that the June 17, 2017 memorandum be included in an appendix to the report, and the report text, at a minimum, include details regarding the preservation of all sample types (including surface water and sediment). Please address.

Army Response:

-Text in sections 3.1.4 and 3.1.5 has been updated to reference the use of Trizma for preservation.

-The June 17, 2017 Memorandum has been added to Appendix D. Laboratory Analytical Data (formerly located in Appendix D) is now included in Appendix E and Data Validation in Appendix F.

-A statement has been added to Appendix E – Laboratory Analytical Reports in the case narrative section for each Level IV Data Package as follows: "The samples were received in containers preserved with Trizma. Trizma is typically used to quench residual chlorine in chlorinated waters and there are no negative impacts associated with its addition to non-chlorinated waters."

*EPA Review: Response accepted. Please include revised Appendices in the Draft Final version of the SI Report for EPA's review.*

3. In order to more fully document PFAS impacts and assist in the scoping of future PFAS investigations, please include well screen intervals and/or sampling depths in one or more tables and illustrate on cross-sectional figures.

Army Response: Screened intervals have been added to Tables 3 and 4. Screen elevations have also been added to facilitate comparisons of sampled intervals. As lithologic information was only collected at select borings to a maximum depth of five feet below ground surface, lithologic information for most wells that would allow preparation of cross-sectional figures is currently unavailable. Furthermore, temporary well screens were advanced into the water table surface as opposed to specific lithologic zones. Therefore, cross sectional figures can be better prepared once additional lithologic and vertical PFAS distribution data have been obtained in future investigations.

*EPA Review: Response accepted.*

### **Page-Specific Comments**

1. Page 1, Section 1.0 – The first sentence states that site inspections (SIs) were conducted at nine potential PFAS release areas but the following sentence refers to nine areas of contamination (AOCs) and study areas (SAs). Unfortunately, the proceeding discussion fails to explain the distinction between each or how they relate to the ten areas shown on Figure 1. Please amend this section to more clearly describe the connection between release areas, SAs and AOCs and include reference to the discussion of ongoing CERCLA activities in Section 2.6 (which more clearly defines/describes each AOC and SA).

Army Response: The following text was added to address the comment: "BERS-Weston Services JVA, LLC (BERS-Weston) under contract to the U.S. Army Corps of Engineers (USACE) New England District (Contract No. W9128F-14-D-0009, Delivery Order No. 0027) has conducted site inspections (SIs) at nine potential per- and polyfluoroalkyl substances (PFASs) potential release areas at the former Fort Devens Army Installation located in Devens, Massachusetts (former Fort Devens). The purpose of conducting the SI was to determine the presence or absence of PFAS in soil and groundwater where fire-fighting foams containing PFAS may have been used, stored, or released. The locations of the nine areas of contamination (AOCs) and study areas (SAs) are shown on Figure 1. The Devens Fire Station is included in this figure as the site is planned for a SI in 2018. The SAs and AOCs are described in detail in Section 2.0 of this document and rationale for sampling each SA and AOC are summarized in Table 1. SIs were conducted in accordance with Final Expedited Site Inspection Work Plan for Per- and Polyfluoroalkyl Substances (PFAS), Former Fort Devens Army Installation (May 2017) and associated approved variances."

*EPA Review: Response accepted.*

2. Pages 2 (last paragraph) and 3 (first paragraph), Section 2.4 – The discussion of water supply wells should be expanded to describe the different water supply wells identified (i.e. public, non-transient non-community, and transient non-community) and the specific communities they serve, their current status (i.e. active vs inactive), and applicable operational information (i.e. size of community served, pumping rates, blending and/or treatment, etc.). In addition, please move the discussion of SPIA water supply wells, currently in subsection 2.6.9, to this section.

Army Response: Additional information on water supply wells has been added as Table 2A. Section 2.6.9 was moved as requested to Section 2.4.

EPA Response: Please add definitions of “Public Groundwater Supply Well”, “Non-transient non-community well”, and “Transient non-community well” to either the Section 2.4 text, Table 2A, or both.

*In addition, please indicate the status of each well listed on both Tables 2A and 2C, as either inactive or active. Both tables show inactive wells. For example, both the “Grove Pond Well #1” and “Grove Pond Well #2” are currently inactive. A footnote should be added to the table to indicate the date the status was determined.*

*Since the West Groton Town Forest well was sampled, EPA recommends that the details on the Town Forest well also be provided in Table 2C.*

*For all Tables (and Figures) numbers need correction. For example, Table 2A, Water Supply Wells within 4 miles of AOCs/SAs is labeled Table 18 upon printing.*

3. Page 3, Section 2.4 – The fourth sentence incorrectly identifies the twelve 8-inch wells, located to the west of Grove Pond, as components of the Town of Ayer water supply system. During a recent telephone conversation with Jim Moore of Mass Development’s DPW, EPA learned that these wells were actually part of the now defunct Devens wellfield (permanently removed from service several years ago due to constant flooding and limited operational capacity/function). As such, the current discussion should be corrected to more accurately identify and describe these wells.

In addition, please provide specific information (i.e. size, well screen depth, average monthly pumping rates/volumes, and treatment systems, if any) for Ayer (wells 6, 7 and 8) and Devens’ (MacPherson, Shabokin and Patton) water supply wells. A separate section should be created in the document that includes a brief history of PFAS drinking water sampling events (i.e. by whom and when were samples collected/analyzed and validated analytical results for each of the water supply wells sampled).

Army Response: The 12 8-inch wells have been removed from the discussion of current water supply wells. Information regarding PFAS drinking water sampling and analytical results is included in Table 2B. Specific details on sampling events can be added. However, the info will need to be provided and verified by others to ensure completeness for the requested sampling events, collection/analytical dates, and validation data request. Therefore, specific details can be better prepared if additional PFAS distribution data are obtained. Additional details regarding supply wells have been added as Table 2C

and Appendix A.

*EPA Review: Army requested that details and information related to public water supply sampling be provided “by others” for inclusion in the report. With these comments, EPA has provided additional information and suggested language regarding the municipal water supply wells and sampling efforts in a “Track Changes” version of the Army’s 1/12/18 revision draft/RLSO submittal. Please see attached.*

*Within Section 2.4, and throughout the document (including tables and figures), please replace “Health Advisory Level” (HAL) with “Lifetime Health Advisory” (LHA).*

*In addition, on Table 2B “Ayer Multi-Finished 4 Grove” well ID should be footnoted to indicate that location represents the finished water from a combination of Grove Pond Wells 6, 7, and 8. In addition, for subsequent revisions of the SI Report, please include the most recent PFAS sampling data for all potable wells.*

4. Page 3, Section 2.4, 2<sup>nd</sup> paragraph - Please insert “PFOA was detected at concentrations up to 24 ng/L” after “PFOS was detected at concentrations up to 85 nanograms per liter (ng/L)” in the first sentence.

Army Response: This language has been added to the report text.

*EPA Review: Response accepted.*

5. Page 3, Section 2.4, 2<sup>nd</sup> paragraph – The last sentence of the paragraph states “It is noted, however, that the MacPherson well is blended with the Patton and Shabokin wells, both of which showed PFAS concentrations well below the HAL.” Although there may be some mixing of the pumped water from the three Devens wells within the distribution system (and within the connected storage tank once an amount in excess of current demand is pumped), it is misleading to state that it is blended. Based on information provided by the Devens water supplier, it likely that water pumped from each respective well, at least upon system start-up, is distributed to the closest users of that well. The system operation needs to be more clearly and more accurately described within the report.

Army Response: Language has been added to the report text to describe potential instances in which water may be distributed to users nearest to a given well.

*EPA Review: EPA has provided suggested language to clarify the Devens water supply system within Tracked Changes in the Army’s RLSO submittal. Please see attached.*

6. Page 3, Section 2.4 – The current discussion of possible connections between potential release (i.e. source) areas and potentially-impacted water supply wells in the final two paragraphs of the section is premature and should be moved to the discussion of potential groundwater impacts in Section 4.2. While it is acceptable to identify the water supply wells located closest to the AOCs or SAs investigated in the SI, potential connections between PFAS detections in these areas and drinking water wells should appear later in the document with the discussion of sampling results, detailed groundwater flow information and a discussion of proximity to the public water supply wells. (Please note: Text in the third

paragraph refers to *two* closest AOCs or SAs to the Grove Pond Wells, but then lists *three* (AOC 5, SA 74, and SA 75). This should be corrected in subsequent discussions.)

Army Response: This discussion has been moved to Section 4.2.8 and the third paragraph has been revised to refer to the *three* closest SAs and AOCs to the Grove Pond Wells.

EPA Review: *Response accepted.*

7. Page 4, Section 2.5, end of section – Please insert an additional sentence stating “The Final PA Report was issued in September 2017 and included the Devens Fire Station as a potential source area”.

Army Response: This language has been added to the report text.

EPA Review: *Response accepted.*

8. Page 4, Section 2.6 – Please amend the first paragraph to read, “Based on recommendations of the Final PA Report, sampling was performed at the following suspected PFAS source areas:”

Army Response: This language has been incorporated into the report text.

EPA Review: *Response accepted.*

9. Page 5, Section 2.6 – Please amend each of the subsections (i.e. 2.6.1 – 2.6.9) to include a brief description of work, historic and/or ongoing, performed in accordance with CERCLA (i.e. PA/SI, RI/FS/ROD/RA). The inclusion of this information will also help support prior AOC and SA designations/discussions.

Army Response: All SAs and AOCs were identified during the PA conducted by KGS in 2017 as indicated in the report text in these sections. No previous PFAS-related work has been performed in accordance with CERCLA in the AOCs and SAs described in the SI report. Thus, no additional information has been added to the text.

EPA Review: *EPA’s original comment stands. One or two sentences should be added to each subsection to describe work previously conducted at these SAs/AOCs. This information is part of the sites’ operational history and waste characteristics and should be included in these subsections.*

10. Pages 5 and 6, Section 2.6 – While Table 2 provides some information on sampling rationale, each of the subsections should be amended to include a more thorough discussion of the process employed for identifying and investigating each AOC/SA as a potential PFAS release (i.e. source) areas.

Army Response: Language has been added to describe the process for investigation in the AOCs and SA. Note that the process for investigating each area is included in the PA document and SI investigation processes and methods are included in Section 3 of the SI Report.

*EPA Review: EPA's original comment stands. Unless Army is submitting the PA and SI as a single document, the SI is a stand-alone document and as such, should include relevant and clarifying information.*

11. Page 5, Section 2.6.5, last sentence – The soil and groundwater sampling is discussed in the future tense. Please correct to past tense, since these media were sampled in the SI.

Army Response: This sentence has been corrected.

*EPA Review: Response accepted.*

12. Page 6, Section 2.6.8 – Please add a sentence at the end of the discussion acknowledging that remnants from the fire were transported to and disposed of at AOCs 5 and 50.

Army Response: This sentence has been added.

*EPA Review: Response accepted.*

13. Page 6, Section 2.6.9 – For reasons previously discussed, please delete the current “Previous Sampling” discussion and replace it with a new subsection entitled “SAXX- Devens Fire Station.”

Army Response: The "Previous Sampling" entry has been deleted. Information regarding the Devens Fire Station will be amended to the document once that work is completed.

*EPA Review: Response accepted.*

14. Page 10, Section 3.1.4 – It is unclear if the groundwater samples from the temporary points were preserved with Trizma or not. Please clarify. Also, the memorandum detailing the check valve sampling variance should be included in an appendix of the report.

Army Response: Trizma preservative was used for groundwater samples collected from temporary wells installed during the SI. Section 3.1.4 has been revised accordingly and reference to the Trizma memorandum (Appendix D, formerly Appendix

*EPA Review: Although the response appears to be cut-off, EPA accepts the response. Please provide revised Appendices with the Draft Final SI Report.*

15. Page 11, Section 4.1 – The first paragraph states that groundwater flow diagrams were generated based on measurements from temporary and permanent monitoring points/wells that are *generally consistent* with groundwater flow directions measured as part of the CERCLA-required, annual long-term monitoring programs for AOCs 5, 32, and 50. Based on EPA's cursory comparison of groundwater flow diagrams in the AOC-specific CERCLA RIs and those presented in Figures 3 through 5, there appear to be significant differences in groundwater flow directions between historic and current documents (likely due to the limited number of data points considered in the latter). Please elaborate on the basis of these discrepancies and describe how the issues will be reconciled in the PFAS RI.

Army Response: BERS-Weston acknowledges that groundwater flow directions determined during the SI were based, in some instances, on water level data collected from temporary wells, and in some instances from relatively limited data points compared to previous investigations. It is expected that PFAS RI studies will include expanded groundwater flow direction studies (e.g. water level measurements collected from an expanded set of wells) and will likely include new permanent groundwater monitoring wells that can be used to aid in refining groundwater flow direction.

EPA Review: *EPA recommends that text included in Army's response (beginning with "groundwater flow directions determined") be included in the report to clarify the differences.*

16. Page 12, Section 4.2 – As discussed in comment 6, the discussion of possible connections between potential release (i.e. source) areas and potentially-impacted water supply wells is premature for a SI Report. While it may be helpful to identify the water supply wells located closest to the AOCs or SAs investigated in the SI, an actual correlation between PFAS detections in groundwater samples and public water supply wells can only be determined through the collection and evaluation of additional site data (i.e. PFAS RI).

Army Response: BERS-Weston agrees that actual correlation between PFAS detections in groundwater samples and public supply wells can only be determined by collecting additional site data.

EPA Review: *Response accepted.*

17. Pages 16-19, Sections 5.0 and 6.0 – Based on the limited data collected during the PFAS SI, coupled with the fact that site-specific PFAS screening levels have yet to be developed for Devens, any discussion of the potential impacts should be omitted from this discussion. It is premature to postulate on the significance of sampling results in the SI phase.

Army Response: Language referring to potential impacts has been removed.

EPA Review: *Although some text has been removed, EPA finds that more revision is needed. Until completion of a more detailed investigation (e.g., RI), it is misleading and incorrect to make assumptions regarding continuing sources and risks associated with SI detections. The purpose of the SI was to confirm or deny the presence of contamination. The RI will define the nature and extent and evaluate potential human health risks/impacts. In addition, please revise text referring to "low levels" of contamination and in the case of soils, comparison to specific concentrations (e.g., 1 ug/kg), since site-specific screening numbers have not yet been developed for comparison.*

*EPA has provided some edits and suggested revisions in Tracked Changes in the Army's 1/12/18 RLSO submittal. Please see attached.*

18. Page 20, Section 8.0 – Based on the foregoing comment, this discussion should be amended to reflect that fact that the PFAS RI Work Plan will include the evaluation of all areas (and all media) with confirmed PFAS SI detections, regardless of the concentrations detected.

Army Response: This language was added to the SI report text.

EPA Review: *Response accepted.*

19. Page 21, Section 8.0 – Within the last bullet, Army recommends the Remedial Investigation Work Plan focus on addressing any possible impacts to other municipal supply wells not addressed in the SI. The evaluation should include all of the water supply wells discussed in Section 2.4.

Army Response: Language was added to note that the wells discussed in the SI report will also be included in the RI Work Plan. A bullet was added as follows: "Address any possible impacts to other municipal water supply wells that are not currently included in the SI should information indicate that a complete exposure pathway is possible, present, and attributable to the Army. The PFAS RI Work Plan will include the evaluation of all areas and all media with confirmed PFAS SI detections."

EPA Review: *EPA has provided suggested revisions in Tracked Changes in the Army's 1/12/18 RLSO submittal. Please see attached.*

20. Table 2 – Please amend the table to include the Devens Fire Station study area.

Army Response: The table (now referenced as Table 1) has been amended to include the Devens Fire Station.

EPA Review: *Response accepted.*

21. Table 4 – Please amend the table to include data collected from the Devens Fire Station study area.

Army Response: Data from the Devens Fire Station Study area will be added once collected.

EPA Review: *Response accepted.*

22. Table 6 – Well location identifiers are missing from the table. Please revise.

Army Response: Well location identifiers are included in the table.

EPA Review: *Response accepted.*

23. Table 22 – Please add recommendations for the Devens Fire Station to this table.

Army Response: The Devens Fire Station has been added to the table.



EPA Review: *Response accepted.*

24. Figure 2 – Please add the Devens Fire Station to this figure.

Army Response: The Devens Fire Station has been added to the figure.

EPA Review: *Response accepted.*

25. Figure 9 – Please add the Devens Fire Station to this figure.

Army Response: The Devens Fire Station has been added to the figure.

EPA Review: *Response accepted.*